RESPONSE

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In an Office Action in this case dated September 22, 2006, the Examiner rejected the pending claims, Claims 2-8, 10, 12-16. Subsequent to the Office Action, the Examiner conducted an interview to discuss the rejections of the claims in light of the specification and the prior art. The Applicant acting through his attorney replies to the September 22, 2006 Office Action as follows:

Rejections of Claims 3-8, 10, 12-15 under 35 USC §112 First Paragraph

The Examiner asserts that the Applicant has failed to meet the requirement of 35 U.S.C. § 112 ¶ 1; that paragraph requires, in part, that the application "shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same." ***Chiron Corp. v. Genentech, Inc.,*** 363 F.3d 1247, 1253 (Fed. Cir. 2004). In particular, the Examiner asserts that "It is unclear how the receiver to permit it to recognize different signal strengths."

Applicant specifically invites the Examiner's attention to the paragraph numbered 0012 on page 4 as amended herein:

> A receiver 42 that is fixedly attached to the treadmill, in this case the receiver part of the heart rate monitor Polar PCBA RX2000 or RMoD1, receives the signal 40. ***The strength data of the received signal 40 is read at the receiver measurement point or***

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> ***directly from the receiver coil.*** On the basis of this strength data it is possible to define the distance between the transmitter and the receiver in a known manner. [Emphasis Added.]

An important distinction exists between the receiver, an assembly of parts, and the receiver coil, an antenna within the receiver where a signal is received. A signal received at the receiver coil is generally a sinusoid or a sum of sinusoids, the fundamental or carrier signal having a base frequency and amplitude.

The previously submitted declaration (copy attached) of the inventor, Simo Mäenpää, and in particular to the master's thesis of Pasi Mattila referred to and incorporated in that declaration, especially at page 3 et seq., under the heading, "*2.2.1 Magnetic Field Between Two Coils*" describes the interaction between the sending coil that is a part of the transmitter worn by the user (e.g. the Polar™ Transmitter) and receiving coil mounted on the treadmill (e.g. the Polar™ Receiver). (A translation of relevant portions of that thesis is attached.)

While the thesis discusses relevant electromagnetic field intensity theory, it also discusses and illustrates application of that theory and particularly its application to heart rate monitors of the type described in the application. Section 2.2.1 explains how the mutual inductance between a coil in the transmitter worn by a runner on the treadmill and a coil in the receiver depends upon the distance between the two coils. Section 2.2.2 describes how the analog signal and a polar heart rate receiver will vary as a function of distance from the transmitter. That signal can be measured with an oscilloscope at the test point indicated in Figure 2.5. Because the transmitted waveform is known and because the capacitances and inductances of the receiver and transmitter coils are also known (the Polar™ components in this non-limiting example are selected within tolerances that control the exact performance of both of the receiver and the transmitter coils), the relationship between signal

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strength received at the receiver coil and the distance between the transmitter coil and the receiver is known allowing ready calculation of a distance between the coils.

Thus, to directly answer the Examiner's question, the distance is not a value that can be readily read from the face of the Polar™ Receiver. Rather, the signal garnered at the receiver coil within the receiver is then directed to the amplifier 43 (FIG. 4) likely having a very high impedance at its input to allow the inventive device to sample the signal without simultaneously preventing the receiver circuitry from determining the heart rate by sampling the same signal.

The amplified signal is then filtered, at a filter 44 (FIG. 4), to remove the higher sinusoids from the signal leaving only the carrier signal, the amplitude of which is indicative of signal strength. The remaining carrier signal is then sent through the analog to digital converter 45 (FIG. 4) in order to obtain a directly readable indication of signal strength. As indicated in the Simo Mäenpää declaration, the use of this simple configuration of a receiver coil passing a signal through a filter to an analog to digital converter to sense signal strength is well-known in the art.

In other words, the information can be obtained directly from the heart rate signal as detected at the receiver coil. Accordingly, both this theory and the application of the theory to heart rate monitors in the subject invention are know in the prior art and should be apparent to someone of ordinary skill in the art.

Similarly, the Examiner also rejected Claims 10 and 12-16 under 35 U.S.C. § 112 ¶ 1, as failing to comply with the written description requirement. Particularly, the Examiner alleged that the application does not contain structural recitations of the claimed amplifier, filter and signal modifier. Respectfully, the Examiner's attention is invited to FIG. 4 and the corresponding portions of paragraph 12 as amended. Specifically:

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The strength data of the received signal 40 is read at the receiver measurement point or directly from the receiver coil. On the basis of this strength data it is possible to define the distance between the transmitter and the receiver in a known manner. In signal processing, the signal is amplified at an amplifier 43, filtered at a filter 44 and converted from an analog to a digital signal at the Analog to Digital Converter 45.

The amendments to the specification are not recitation of new matter. The whole of the structure is present in FIG. 4. For that reason, the amendments to the specification cure any noted informality. Finally, applicant has added new apparatus claims 17-19 herein to more particularly point out the various elements of the invention, especially the signal processor.

In summary, the Applicant believes that none of the references cited by the Examiner, either singularly or in combination, disclose or suggest the invention now claimed and that the invention is patentable over all prior art cited by the Examiner or known to the Applicant. Accordingly, the Applicant requests that the Examiner re-examine this application in view of this response, withdraw all rejections of record, and allow each of the claims now proposed.

In the event additional fees are due as a result of this response, payment for those fees has been enclosed in the form of a check. Should further payment be required to cover such fees you are hereby authorized to charge such payment to Deposit Account No. 501050.

DATED this 22nd day of February, 2007.

Respectfully submitted,

BLACK LOWE & GRAHAM PLLC

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HAR/elb

Enclosures: Declaration of the inventor, Simo Mäenpää dated 30 Sept 2003, including the master's thesis of Pasi Mattila referred to and incorporated in that declaration

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CERTIFICATE OF MAILING

I hereby certify that this correspondence (together with all attachments and enclosures) is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to, Mail Stop AMENDMENT, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Dated: 2/22/07

Signature

Michelle J. Carman
Printed or Typed Name

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